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| 10/660,678 | 09/12/2003 | Yukari Nozaki | 242356US2 | 7686 |
| 22850 7590 07/06/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | EXAMINER MENBERU, BENIYAM | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/660,678 | Applicant(s) NOZAKI, YUKARI | |
| | Examiner Beniyam Menberu | Art Unit 2625 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>5/24/07, 12/15/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: On page 11, line 15 "is the unit performs the color" should be "is the unit that performs the color".

Appropriate correction is required.

Drawings

2. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because Figure 1 does not have reference number for the different parts and quality of Figure 1 is not acceptable. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.
3. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the description of parts should be typed in Figure 3 to make it legible and the inputs to reference 311 are not readable. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

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4. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the description in Figure 4 and 5 should be typed to make it clearly legible. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

5. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because Figure 7, 8, 9, 10, 13, 14, 15 description should be typed to make it clearly legible and all items should have reference number. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Reference 301 in Figure 3 is not in description. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the

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immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

7. The drawings are objected to because in Figure 3 reference 309 should be labeled Luminance Calculating Unit. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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8. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Reference 801, 802 is not in specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

9. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "911" has been used to designate both "Red Writing Unit" and "Plotter Controller". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and

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informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

10. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Reference 923 is not in disclosure. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1, 4, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5775918 to Yanagida et al in view of U.S. Patent No. 5598279 to Ishii et al further in view of U.S. Patent No. 4468693 to Fujita et al.

Regarding claims 1 and 11, Yanagida et al disclose an image processing apparatus, comprising:

image reading means for reading analog color image data of a color image, separates the analog color image data into red image data, green image data, and blue image data, and converts the red image data into digital red image data, the green image data into digital green image data, and the blue image data into digital blue image data (column 13, lines 19-24); and

processing means for subjecting the digital red image data, the digital green image data, and the digital blue image data to digital processing (column 13, lines 23-29), wherein the processing means includes

color identifying means for determining, for each of the digital red image data, the digital green image data, and the digital blue image data, whether there exists black data, and

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generates density data from the black data when black data exists, and generates color data from data other than the black data (column 14, lines 21-26);

multinarizing means for converting the color data for each of the digital red image data, the digital green image data, and the digital blue image data into multinary data (column 13, lines 24-27);

magnification varying means for varying the density data (column 14, lines 25-31; reference 62, 64) ;

image printing means for printing the color data binarized and the density data varied, onto a recording medium (column 13, lines 36-53). However Yanagida et al does not disclose magnification varying means for varying the color data multinarized, using a cubic function convolution method and

binarizing means for binarizing the color data varied, based on a predetermined threshold.

Ishii et al discloses magnification varying means for varying the color data multinarized (column 3, lines 61-67; column 4, lines 1-7; column 8, lines 48-55), and binarizing means for binarizing the color data varied, based on a predetermined threshold (column 8, lines 56-67; column 9, lines 1-5).

Fujita et al discloses using a cubic function convolution method (column 5, lines 30-68; column 6, lines 1-9; column 14, lines 44-63).

Yanagida et al, Ishii et al, and Fujita et al are combinable because they are in the similar problem area of printing.

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At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the magnification of Ishii et al and the convolution method of Fujita et al to implement varying of color data using convolution method.

The motivation to combine the reference is clear because Fujita et al teaches that cubic convolution method is of high quality (column 5, lines 66-68) and the system of Ishii et al is convenient when it is necessary to magnify input multinary data.

Regarding claim 4, Yanagida et al disclose an image processing apparatus, comprising:

an image reader that reads analog color image data of a color image, separates the analog color image data into red image data, green image data, and blue image data, and converts the red image data into digital red image data, the green image data into digital green image data, and the blue image data into digital blue image data (column 13, lines 19-24);

an image processor that subjects the digital red image data, the digital green image data, and the digital blue image data to digital processing (column 13, lines 23-29), wherein the image processor includes a separating unit that determines, for each of the digital red image data, the digital green image data, and the digital blue image data, whether there exists black data, and generates density data from the black data when black data exists, and generates color data from data other than the black data (column 14, lines 21-26); and

a two-color image processing unit (Figure 14, output of "61" black and red) that includes a multinarizing unit that converts the color data for each of the digital red image data,

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the digital green image data, and the digital blue image data into multinary data(column 13, lines 24-27);

a magnification varying unit that varies the density data(column 14, lines 25-31; reference 62, 64)

an image forming unit that prints the color data binarized and the density data varied, onto a recording medium(column 13, lines 36-53). However Yanagida et al does not disclose a magnification varying unit that varies the color data multinarized, using a cubic function convolution method; and

a binarizing unit that binarizes the color data varied, based on a predetermined threshold.

Ishii et al discloses magnification varying means for varying the color data multinarized (column 3, lines 61-67; column 4, lines 1-7; column 8, lines 48-55), and binarizing means for binarizing the color data varied, based on a predetermined threshold (column 8, lines 56-67; column 9, lines 1-5).

Fujita et al discloses using a cubic function convolution method (column 5, lines 30-68; column 6, lines 1-9; column 14, lines 44-63).

13. Claims 2, 5, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5775918 to Yanagida et al in view of U.S. Patent No. 5598279 to Ishii et al further in view of U.S. Patent No. 4468693 to Fujita et al further in view of U.S. Patent No. 6222950 to Sugiura et al.

Regarding claims 2, 5, and 12, Yanagida et al in view of Ishii et al further in view of Fujita et al teach all the limitations of claims 1, 4, and 11 respectively. However Yanagida et al in view of Ishii et al further in view of Fujita et al does not disclose the image processing apparatus according to claim 1, wherein the multinarizing unit generates the multinary data by setting "0" where the black data exists and by setting an integer equal to or greater than "1" if the data is other than the black data.

Sugiura et al discloses wherein the multinarizing unit generates the multinary data by setting "0" where the black data exists and by setting an integer equal to or greater than "1" if the data is other than the black data (column 5, lines 10-17; column 8, lines 4-26; column 9, lines 43-51).

Yanagida et al, Ishii et al, Fujita et al, and Sugiura et al are combinable because they are in the similar problem area of printing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the multinarizing of data of Sugiura et al with the system of Yanagida et al, Ishii et al, Fujita et al to implement multinarizing of image data.

The motivation to combine the reference is clear because the system of Sugiura et al is accurate for transforming image data (column 2, lines 5-14).

14. Claims 3, 6, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5775918 to Yanagida et al in view of U.S. Patent No. 5598279 to

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Ishii et al further in view of U.S. Patent No. 4468693 to Fujita et al further in view of U.S. Patent No. 5917955 to Kojima.

Regarding claims 3, 6, and 13, Yanagida et al in view of Ishii et al further in view of Fujita et al teach all the limitations of claims 1, 4, and 11 respectively. However Yanagida et al in view of Ishii et al further in view of Fujita et al does not disclose the image processing apparatus according to claim 1, wherein the binarizing unit binarizes the color data varied by setting to black if the color data varied is "0" and by setting to any color other than black if the color data is not "0".

Kojima discloses wherein the binarizing unit binarizes the color data varied by setting to black if the color data varied is "0" and by setting to any color other than black if the color data is not "0" (column 23, lines 15-18; column 28, lines 5-11).

Yanagida et al, Ishii et al, Fujita et al, and Kojima are combinable because they are in the similar problem area of printing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the binarizing of Kojima with the system of Yanagida et al, Ishii et al, Fujita et al to implement binarizing of varied data.

The motivation to combine the reference is clear because the system of Kojima provides quality image (column 2, lines 12-17).

15. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5775918 to Yanagida et al in view of U.S. Patent No. 5598279 to Ishii

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et al further in view of U.S. Patent No. 4468693 to Fujita et al further in view of U.S. Patent No. 5740333 to Yoh et al.

Regarding claim 7, Yanagida et al in view of Ishii et al further in view of Fujita et al teaches all the limitations of claim 4. However Yanagida et al in view of Ishii et al further in view of Fujita et al does not disclose the image processing apparatus according to claim 4, wherein the black and specific color separating unit further includes a register that previously stores correction values for detecting any color other than black, threshold values, threshold values of luminance for determining whether the data is white or black, and information for process modes; a correction value selector that selects any of the values stored in the register according to a process mode and level; an input selector that selects two image data required for the processing from the image data for three colors based on the data for the stored modes; and a color detector that detects any color other than black from the selected two image data.

Yoh et al disclose

wherein the black and specific color separating unit further includes a register that previously stores correction values for detecting any color other than black, threshold values, threshold values of luminance for determining whether the data is white or black, and information for process modes (column 7, lines 4-15); a correction value selector that selects any of the values stored in the register according to a process mode and level (column 7, lines 7-15);

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an input selector that selects two image data required for the processing from the image data for three colors based on the data for the stored modes (column 7, lines 16-24); and
a color detector that detects any color other than black from the selected two image data(column 7, lines 25-34).

Yanagida et al, Ishii et al, Fujita et al, and Yoh et al are combinable because they are in the similar problem area of printing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the register system of Yoh et al with the system of Yanagida et al, Ishii et al, Fujita et al to implement color processing based on register values.

The motivation to combine the reference is clear because the system of Yoh et al provides a color processing which can better detect colors (column 2, lines 30-46).

Regarding claim 8, Yanagida et al in view of Ishii et al further in view of Fujita et al further in view of Yoh et al teaches all the limitations of claim 7. Further Yoh et al discloses the image processing apparatus according to claim 7, wherein the black and specific color separating unit further includes a luminance calculating unit that receives the image data for three colors and calculates a luminance value of each of the image data (column 7, lines 66-67; column 8, lines 1-3); and a color determining unit that reads a threshold value of the luminance from the register, and compares the read threshold value with a calculated value to determine each pixel

as black, white, or any other color, and outputs image signals (column 8, lines 3-9).

Regarding claim 9, Yanagida et al in view of Ishii et al further in view of Fujita et al further in view of Yoh et al teaches all the limitations of claim 8. Further Yoh et al discloses the image processing apparatus according to claim 8, wherein the black and specific color separating unit further includes a matrix generating unit that receives the output image signals, accumulates signals for five lines to generate a 5 x 5 matrix, and generates linear line patterns from the matrix (Figure 8a; column 7, lines 42-49); a pattern matching unit that compares each of the linear line patterns with a preset reference pattern, and determines if each of the linear line patterns matches the reference pattern (column 7, lines 49-54); and a color shift correcting unit that determines, if the pattern in the linear line patterns matches the reference pattern, a target pixel included in the linear line pattern as color shift, changes a color of the target pixel to another color, and outputs the image data in which color shift has been corrected as two-color data (column 7, lines 55-65; Figure 9; Figure 2, output of "7").

Regarding claim 10, Yanagida et al in view of Ishii et al further in view of Fujita et al further in view of Yoh et al teaches all the limitations of claim 9. Further Yoh et al discloses the image processing apparatus according to claim 9, wherein the black and specific color separating unit further includes a timing adjusting unit that outputs

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luminance data at a timing at which the color shift correcting unit outputs the two-color data (column 8, lines 10-14).

Other Prior Art Cited

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6765587 to Zhang et al disclose image processor based on interpolation.

U.S. Patent No. 5576847 to Sekine et al disclose image processor.

U.S. Patent No. 6057932 to Yoshida et al disclose color density adjustment.

U.S. Patent No. 5892595 to Yamakawa et al disclose image scanning system.

U.S. Patent No. 5165071 to Moriya et al disclose color copier.

U.S. Patent No. 6364452 to Noyes et al disclose printing with color data.

U.S. Patent No. 5673116 to Fukushima disclose multi-level data transforming system.

U.S. Patent No. 5699169 to Nakatani et al disclose copier system with multi-level transformation.

U.S. Patent No. 6501492 to Kunishi et al disclose image printing based on level of image data.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Beniyam Menberu whose telephone number is (571) 272-7465. The examiner can normally be reached on 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung Moe can be reached on (571) 272-7314. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is (571) 272-2600. The group receptionist number for TC 2600 is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov/>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner

Beniyam Menberu

BM

06/23/2007

KA Williams

KIMBERLY WILLIAMS
PRIMARY PATENT EXAMINER